REMARKS

This Amendment is responsive to the Office Action mailed January 3, 2005. Claims 15, 16, 18, 24, 25 and 27 stand rejected. Applicant acknowledges the allowance of claim 8, and the allowability of claims 2, 4 - 6, 17, 19 - 23, 26 and 28 if rewritten so as not to depend from rejected claims.

Section 102 Rejections

Claims 15, 16, and 18 stand rejected under 35 USC §102(b) as being anticipated by Mallinson, U.S. Patent No. 4,233,901 ("Mallinson"). Applicant had previously submitted arguments distinguishing Mallinson, submitting that Mallinson does not disclose valves used for controlling the flow of pressurized air that are controlled in response to information about the drying energy required for drying the ink.

The examiner responded to Applicant's argument by asserting that Mallinson discloses a valve 22 that regulates airflow into fan system 27, which is shown in Figure 3 to provide heated air for drying the web. However, the valve 22 does not regulate the flow of pressurized air.

In any case, Applicant submits that Mallinson differs much more significantly from the claimed invention, and claims 15 and 18 have been amended to clarify this difference. To show the difference as well as address the Examiner's contentions, a more detailed discussion of Mallinson is provided below.

Description of Mallinson

An apparatus (1) is provided for drying a web material printed by a rotary printing press (3).

Col. 2, lines 37 - 39. The printing press (3) comprises a (hereinafter "drying") device (4) for producing a heated, pressurized, web-drying flow of air. Col. 2, lines 39 - 43.

In such a context, the problem addressed in Mallinson is the undesirable evolution, in the room in which the printing press is located, of volatilized solvent (referred to in Mallinson and hereinafter as a "solvent mixture") driven off from the ink during drying. The solvent mixture creates an explosion hazard, and it is the objective of Mallinson to automatically maintain the solvent mixture at a level that is at or below a permissible or safe value. See Col. 1, lines 15 - 52 and Col. 2, lines 8 - 9.

Although Mallinson does not refer to the apparatus in this manner, the reference describes two basic aspects of the apparatus: (A) a drying system; and (B) an exhausting system. Both of these systems employ (C) automatically controlled valves. In addition, Mallinson discloses (D) three modes of operation.

(A) The Drying System

The drying device (4) has a suction side (5) and a discharge side (6). Col. 2, lines 40 - 41. Apparently, the suction side (5) is for receiving inlet air from the atmosphere. Thus, a "fresh air inlet means" (17) that is exposed to fresh, atmospheric air is connected to the suction side (5). Col. 2, lines 53 - 55 and Figure 7. A valve (22) controls this flow of inlet air. Col. 2, lines 56 - 58.

The drying device (4) houses a fan (26) (which apparently pressurizes the air), the outlet of the fan (26) comprising the discharge side (6) and leading to a heater (8) for heating the (pressurized) air. Col. 3, lines 4 - 11.

The heater (8) comprises a nest of tubes through which steam is caused to flow and over

which the pressurized air to be used for drying is caused to pass. Col. 3, lines 12 - 15. Steam flow through the heater tubes is automatically controlled.

(B) The Exhaust System

To collect the dangerous solvent mixture, along with other air circulating in the room in which the printing press (3) is operating, a hood (12) is provided. Col. 2, lines 46 - 49. Outlet ducts (15) and (16) provide for exhausting the air collected with the hood (12). Col. 2, lines 50 - 53.

Flow through the exhaust ducts (15) and (16) is controlled by valves (21) and (22). Col. 2, lines 56 - 58.

(C) The Valves

The valves (20), (21), and (22) are controlled by a "lower-explosive limit" (or "LEL") sensor 34. As described above and as shown in Figure 7, the valve (22) controls inflow of fresh air from the atmosphere to the low pressure or "suction side" of the drying device (4). The air is thereafter pressurized, heated, and applied to the web, for drying the web.

As a result of passing over the web and drying the web, the air now includes volatilized solvent that must be exhausted. The valves (20) and (21) control outflow of this exhaust through the exhaust ducts.

(D) The Three Modes of Operation

Mallinson discloses three modes of operation of the valves: (a) "straight-through," (b) "recirculation," and (c) an intermediate drying flow between (a) and (b).

In the straight-through mode (a), valves (20) and (21) are opened and valve (20) is closed. Accordingly, fresh atmospheric air is induced into the drying device (4) via the duct (17) and by the fan (26), is heated by the heater (8), and is discharged onto the web. Solvent mixture (which includes ambient air) is drawn into the hood (12) to be discharged to the atmosphere. Col. 4, lines 7 - 13.

In the recirculation mode (b), the valve (22) is closed and the valves (20) and (21) are opened. Accordingly, solvent mixture drawn into the hood (12) is recirculated into the drying device (4) for re-use. Col. 4, lines 15 - 20.

In the intermediate mode, Mallinson indicates that any valve positions intermediate to their positions in (a) and (b) could be used. Col. 4, lines 21 - 23.

Discussion

From the above descriptions, it is clear that a valve (22) controls the inflow of atmospheric air that is subsequently pressurized, heated, and applied to the web for drying. On the other hand, valves (20) and (21) control the outflow of pressurized air that had been previously used for drying. The outflow can be exhausted to the atmosphere, or re-used by recirculation in the drying device (4) in which case the valve (22) is closed to prevent the inlet of additional fresh air.

The ink as it dries evolves the solvent mixture. Mallinson controls the valves (20), (21), and (22) in response to information about the level of solvent mixture in the ambient air:

> "Thus the device 34, being sensitive to changes in the air to solvent ratio of solvent mixture being collected by the hoods 12, is operable

so as to adjust the valves 20, 21, 22 whereby flow through the ducts 15, 16 and 17 is controlled automatically." Col. 3, lines 40 - 44.

It is apparent from the modes of operation that Mallinson is not proposing to vary the total amount of drying air that is applied to the web or sheet. Rather, Mallinson proposes to control, through use of the valves (20), (21), and (22), the relative proportions of fresh air and recirculated air that is used in the airstream used for drying. Regardless of whether the air is fresh or recirculated, it is heated by the heater (8) and reach or nearly reach the temperature of the steam in the tubes. However, using recirculated air will save fuel costs, as described at Col. 4, lines 29 - 33.

On the other hand, where the solvent mixture level is too high, Mallinson would increase the proportion of fresh air to dilute the solvent-laden air and thereby reduce the solvent mixture level to a safer level. If a dangerous solvent mixture level is reached, the printing press is simply shut down, which does not involve control of the valves (20), (21), or (22). See Col. 44 - 47.

Rejected Claims Recite Patentable Distinctions Over Mallinson

Rejected independent claim 15 recites a controller for receiving first information for determining the drying energy required of said first drying portion and automatically controlling said first fluid flow valve in response to said first information, for drying ink deposited on the sheet.

Rejected independent claim 18 recites receiving first information for determining the drying energy required of said first drying portion and automatically controlling the flow rate of the gas through said first plenum in response to said first information, for drying ink deposited on the sheet.

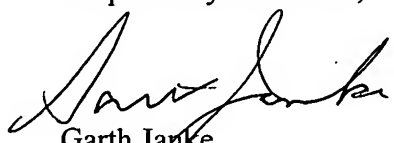
Both claims require information from which a required drying energy can be determined and control of the flow of a drying gas or fluid to effectuate the drying in response. The claims

originally implied a causality that has been made more explicit by the Amendment. Particularly, there is a causality between the claimed information and the claimed drying that results from controlling the valves in response to the information. By contrast, Mallinson obtains information, particularly the solvent mixture level, that is indicative of how much drying has already occurred. It is physically impossible to control drying using information that can only be obtained after the drying has already occurred.

Moreover, Mallinson's valves (20), (21), and (22) provide no control of drying energy--rather, these valves merely control the solvent mixture level in the air used for drying, by controlling the proportion of recirculated air as opposed to fresh air that is used.

For these very substantial reasons, it is respectfully submitted that all of the claims remaining in this case are in condition for allowance, and the Examiner is respectfully requested to pass the case to issue.

Respectfully submitted,



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